REMARKS

Claims 1-32 were pending in this application. Claims 9-10 and 17-18 are hereby canceled without prejudice or disclaimer. New claims 33-44 are hereby added and claims 1-8, 14-16, 22-29, and 31-32 are hereby amended merely to more specifically define inherent aspects of the invention as originally claimed. No new matter is introduced by the amendments.

Priority Claim Under 35 U.S.C. §119(e)

The Examiner is hereby requested to acknowledge the claim for domestic priority under 35 U.S.C. §119(e) from U.S. Provisional Application No. 60/271,452 filed on February 27, 2001.

Claim Objections

Claims 14 and 29 were objected to as containing the informality "data items be displayed." The phrase "data items be displayed" was deleted from claims 14 and 29, as amended. Therefore, this rejection is overcome.

Claim Rejections Under 35 U.S.C. §112

Claims 4-6 and 8 were rejected as being indefinite. Specifically, claims 4-6 were rejected for reciting "said mismatches" without sufficient antecedent basis, and claim 8 was rejected for reciting "k" without sufficient antecedent basis.

Claim 4, as amended, no longer recites "said mismatches" and thus the rejections of claims 4-6 are now overcome. In addition, claim 7, from which claim 8 depends, was amended to depend from claim 6 that provides the antecedent basis for the recitation of "k" in claim 8. Thus, the rejection of claim 8 is also overcome.

Claim Rejections Under 35 U.S.C. §102(e)

Claims 1, 7, 9, 11, 14-17, 21, and 29-31 were rejected as being anticipated by Kurumisawa et al. (US Patent No. 6,252,572). This rejection is respectfully traversed.

Independent claims 1, 14, and 29 are directed to a method, driver, and a liquid crystal display (LCD), respectively.

Claim 1 recites:

"…an LCD (liquid crystal display) panel associated with i number of scan lines and j number of column lines, said i and j being positive integers not less than 2, …
concurrently retrieving display data to be displayed on the LCD panel from a scan block of a display data memory, …… the scan block corresponding to m number of the scan lines and said j number of the column lines, said m being an integer not less than 2 and not more than i…"

Claim 14 and 29 variously recite:

"…driving an LCD (liquid crystal display) panel associated with i number of scan lines and j number of column lines, said i and j being positive integers not less than 2, …
concurrently outputting display data corresponding to a scan block corresponding to m number of the scan lines and said j number of the column lines, said m being an integer not less than 2 and not more than i…"

Thus, the claimed invention of independent claims 1, 14, and 29 concurrently retrieves or outputs display data corresponding to a scan block of the display data memory. Here, the scan block corresponds to a plurality of scan lines as well as all the column lines associated with the display data memory.

Kurumisawa et al. does not disclose or even suggest concurrently retrieving or outputting display data corresponding to a scan block of the display data memory where the scan block corresponds to a plurality of scan lines as wells as all the column lines. Rather, Kurumisawa

merely discloses concurrently retrieving display data corresponding to multiple scan lines but only to a column line.

Specifically, the driver of Kurumisawa et al. concurrently selects multiple (4) scan lines during a single selection period (H1st). *See Kurumisawa et al., at 9:14-22 and Fig. 57.* A selection period (H) is defined as the period necessary for selecting a scanning line once. *See Id. at 7:23-27 and Fig. 56A-56C.* However, Kurumisawa et al. further discloses that the display data corresponding to the multiple columns of the selected scanning lines are not concurrently retrieved <u>but sequentially retrieved, column by column, in response to the clock signal</u> (CLK). *See Id. at 9:23-31 and Fig. 58.* Therefore, in the example described in Figs. 57 and 58, the frame memory merely concurrently outputs display data corresponding to 4 (scanning lines) x 1 (column line) pixels of the LCD panel. Accordingly, the driver of Kurumisawa requires an output shift register 2021 for temporarily storing and shifting the display data while the display data corresponding to the multiple columns of the selected scanning lines are <u>sequentially retrieved</u>. *Id. at 12:43-49 and Fig. 2.*

This is in contrast to the claimed inventions of independent claims 1, 14, and 29, where the display data of the entire scan block corresponding to a plurality of scan lines as well as all the column lines are concurrently retrieved or output from the display data memory. Therefore, it is respectfully submitted that independent claims 1, 14, and 29 are patentable over Kurumisawa et al.

Claims 9 and 17 are hereby cancelled, and thus the rejections of claims 9 and 17 are now overcome.

Claims 7, 11, 15-16, 21, and 30-31 depend directly or indirectly from independent claims 1, 14, or 29, and thus are patentable over Kurumisawa et al. for at least the reasons described above.

Claim Rejections Under 35 U.S.C. §103(a)

Claims 2, 3, 10, 12, 13, 18-20, 22-28, and 32 were rejected as being anticipated by Kurumisawa et al. (US Patent No. 6,252,572) in view of Furuhashi et al. (US Patent No. 5,818,409. This rejection is respectfully traversed.

As stated previously, Kurumisawa et al. fails to disclose or even suggest concurrently retrieving or outputting display data corresponding to a scan block corresponding to a plurality of scan lines as well as all the column lines associated with the display data memory, as claimed in independent claims 1, 14, or 29 from which claims 2, 3, 10, 12, 13, 18-20, 22-28, and 32 depend directly or indirectly.

Furthermore, Furuhashi et al. also fails to disclose concurrently retrieving or outputting display data corresponding to a scan block of the display data memory where the scan block corresponds to a plurality of scan lines as wells as all the column lines, as claimed in independent claims 1, 14, or 29 from which claims 2, 3, 10, 12, 13, 18-20, 22-28, and 32 depend directly or indirectly. As with Kurumisawa et al., the driver of Furuhashi et al. merely selects multiple (4 in the described embodiment) scanning electrodes concurrently, but _sequentially_ outputs the display data corresponding to the multiple columns accessed by each of the selected scanning electrodes. This is why the sequentially output display data corresponding to the multiple columns need to be stored in the four-line shift register 134 (4 for the 4 selected scanning electrodes), to _successively_ store the output display data corresponding to the multiple columns associated with the selected scanning electrodes, until the shift register is full and the display data corresponding to the multiple column lines of the selected scanning electrodes are ready to be output to the latch 136. _See Furuhashi et al. at 20:8-20 and Fig. 14._ Nowhere does

Furuhashi et al. disclose or even suggest that the display data corresponding to a plurality of scan lines and all the column lines are concurrently retrieved or output.

The deficient disclosures of Kurumisawa et al. and Furuhashi et al. thus fail to establish even a *prima facie* basis from which a proper determination of obviousness can be made. It is therefore respectfully submitted that dependent claims 2, 3, 10, 12, 13, 18-20, 22-28, and 32, as amended, are patentable over Kurumisawa et al. and Furuhashi et al.

New Claims

New dependent claims 33-41 are dependent from claims 1, 14, or 29 directly or indirectly and are patentable for at least the reasons described above.

In addition, new claims 34 recites "...the exclusive OR operations are performed on said concurrently retrieved display data without storing said concurrently retrieved display data in data latches prior to the exclusive OR operations..." and claims 37 and 40 recite "the XOR block is directly coupled to the display data memory to perform the exclusive OR operations on said concurrently output display data without storing said concurrently output display data in data latches prior to the exclusive OR operations." Neither Kurumisawa et al. nor Furuhashi et al. discloses or even suggests this feature of claims 34, 37, and 40. In fact, Kurumisawa et al. and Furuhashi et al. both teach away from this features of claims 34, 37, and 40 by disclosing, for example, the use of shift register 2021 (*Kurumisawa et al.*, Fig. 2) or both shift registers 134 and latches 136 (*Furuhashi et al.*, Fig. 14) for storing the sequentially output display data corresponding to the multiple columns within the selected scanning lines. Therefore, it is respectfully submitted that claims 34, 37, and 40 are patentable over Kurumisawa et al. and Furuhashi et al. for also this reason.

New independent claim 42 recites:

"...concurrently retrieving the display data stored in a scan block of a display data memory, the scan block being a part of the display data memory and corresponding to a plurality of the scan lines and a plurality of the column lines..."

New independent claims 43 and 44 variously recite:

"...the display data memory concurrently outputting the display data stored in a scan block of the display data memory, the scan block being a part of the display data memory and corresponding to a plurality of the scan lines and a plurality of the column lines..."

As stated previously, neither Kurumisawa et al. nor Furuhashi et al. discloses or even suggests retrieving or outputting display data of a scan block corresponding to a plurality of scan lines and a plurality of column lines. Therefore, new independent claims 42-44 are also patentable over Kurumisawa et al. and Furuhashi et al.

It is therefore respectfully submitted that all pending claims 1-8, 11-16, and 19-44 are in condition for allowance. Favorable action is solicited.

Respectfully submitted,
Tae-Kwang Park and Keunmyung Lee

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Jae Won Song, 37 C.F.R. §10.9(b)
Fenwick & West LLP
Silicon Valley Center
801 California Street
Mountain View, CA   94041
Phone: (650) 335-7164
Fax: (650) 938-5200